



DATE: August 27, 1998

FROM: Project Engineer

SUBJECT: 0L- 3073 SR 512
SR 512 Bridge 512/40N (WB)
MP 11.99 to MP 12.06
Safety Improvement
Request For Deviation

THRU: **Region Project Development**

TO: H. Peterfeso
Engineering Service Center, Design
MS: 47330; 2B

Overview

The purpose of this project is to reduce accidents at this SR 512 location by improving the traction on the bridge structure between MP 11.99 and MP 12.06. This section is a high accident location (HAL).

Project Description

This project proposes to improve the traction on the bridge structure by pre-leveling with ACP Class G and overlaying the existing concrete bridge deck with ACP Class A.

Design Matrix 4, Row 10 was used for this project.

SR 167 SB to SR 512 WB Ramp Curve

Existing Conditions

SR 512 is a principal arterial, multilane P-1 highway. This section is classified as rural and level terrain. At this location the existing superelevation is 10% and the existing curve radius is 193.5 m. The total length of this curve is 372 m.

Accident Summary

From January 1, 1993, to December 31, 1996, there were 4 total accidents within the full superelevation. Three of the four accidents occurred on the outside of the curve.

<u>Type of Accident</u>	<u>Number</u>	<u>Reason & Where</u>	<u>Severity</u>
Barrier	2	Lost control, outside of curve	1, 6
Overturn	1	DWI, outside of curve	7
Running into ditch	1	DWI, inside of curve	6

Severity 1 = No Injury, 6 = Evident Injury, 7 = Possible Injury.
See attached accident list for additional accident information.

Standards

The design speed for SR 512 and SR 167 is 110 km/h. The design speed for the SR 167 SB to SR 512 WB Ramp is 100 km/h.

Design Manual, Figure 640-13a calls for a minimum curve radius of 360 m with a 10% superelevation.

The SR 167 SB to SR 512 WB Ramp curve radius does not meet current design standards.

Recommendation

We propose to not change the SR 167 SB to SR 512 WB Ramp's curve radius for the following reasons:

1. Only 2 accidents within the four year accident analysis period, were related to the curve radius geometry. These 2 accidents were barrier hits on the outside of the curve, which is one third of a kilometer long, and consisted of 1 property damage only, and 1 evident injury. The other 2 accidents during this period were caused by driving while intoxicated (DWI). One on the inside of the curve, and one on the outside of the curve and both accidents were on dry pavement and late at night. The primary cause for both accidents was the DWI and therefore they were not related to the curve geometry.
2. To upgrade this connection to current standards would require the reconstruction of this ramp. This would include a new ramp length of 800 m; the construction of a new bridge structure; the construction of four retaining walls; the purchase of 2.5 acres of right of way, including the relocation of 2 homes; and the removal of 900 m of the existing ramp, including the existing structure.
3. The safety benefit/cost analysis for this upgrade would only be 0.37.

We appreciate your earliest review and approval of this deviation so that we can complete the design documentation and estimate for this project.

If you have any questions, please contact Mel Albers or Ludwig Hill at (253) 536-6035.

Region

Concurrence

Date